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[Claim(s)]

[Claim 1]As opposed to denaturation polyolefine (A) 100 weight section which makes the vinyl system monomer component (b) 1 - 500 weight sections come to polymerize under existence of crystalline polyolefin (a)100 weight section, (Meta) An acrylic group content phenol system compound and (or) (meta) the acrylic group content sulfur system compound (B) 0.01 - 20 weight sections, and a phenolic antioxidant, A refining polyolefin-system-resin constituent which was chosen from a phosphorus system antioxidant and a sulfur system antioxidant and with which it makes it come to mix at least one sort of 0 - 20 weight sections.

[Claim 2]Denaturation polyolefine (A) aqueous suspension containing the radical polymerization initiator (c) 0.01 - ten weight sections to the vinyl system monomer component (b) 1 - 500 weight sections, and this vinyl system monomer component (b) 100 weight section to crystalline polyolefin (a)100 weight section as it is, Or a vinyl system monomer component (b) heats under conditions which do not polymerize substantially, This crystalline polyolefin (a) is impregnated with this vinyl system monomer component (b), The refining polyolefin-system-resin constituent according to claim 1 which is a thing which furthermore heats this aqueous suspension to temperature beyond temperature to which a crystal part of this crystalline polyolefin (a) starts fusion substantially, and makes a vinyl system monomer component (b) come to polymerize.

[Claim 3]Methacrylic acid alkyl ester whose carbon numbers of an aromatic vinyl system compound and an alkyl group a vinyl system monomer component (b) is 1-22, Claim 1 which is a component which consists of 20 or less weight % of other vinyl system monomers with a as copolymerizable carbon number of an alkyl group as at least one-sort 80 weight % or more and these which were chosen from acrylic acid alkyl ester and an unsaturated nitrile compound which are 1-22. Or a refining polyolefin-system-resin constituent given in two.

[Claim 4]A vinyl system monomer component (b) Styrene, The refining polyolefin-system-resin

constituent according to claim 1 or 2 which is a component which consists of at least one-sort 80 weight % or more and these which were chosen from methyl methacrylate and acrylic acid n-butyl, and 20 or less weight % of other copolymerizable vinyl system monomers.
[Claim 5]When a vinyl system monomer component (b) polymerizes, (Meta) An acrylic group content phenol system compound. It reaches (.). Or (meta) 0.01 to 10 weight % (vinyl system monomer component (b).) of acrylic ester which has 0.01 to 10 weight % of alkylthio alkyl (meta) acrylate and (or) a phenol group which are acrylic group content sulfur system compounds (B) (meta) [all] and the total quantity of the (B) component -- receiving -- the refining polyolefin-system-resin constituent according to claim 1 or 2 which it comes to use with a vinyl system monomer component (b).
[Claim 6]The refining polyolefin-system-resin constituent according to claim 2, 3, 4, or 5 whose aqueous suspension is the aqueous suspension which contains the radical polymerization initiator (c) 1 - ten weight sections to vinyl system monomer component (b) 100 weight section.

[Claim 7]The refining polyolefin-system-resin constituent according to claim 1, 2, 3, 4, 5, or 6 which is the propylene system polyolefine in which crystalline polyolefin (a) polymerizes a monomer component containing 75 weight % or more of propylene.
[Claim 8](Meta), [an acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-. (3-t-butyl-2-hydroxy-5-methylbenzyl)-4-methylphenyl (meta) acrylate and (or) a 2-[1-(2-hydroxy-3,5-di-t-pentylphenyl) ethyl]-4,6-t-pentylphenyl. (Meta) The refining polyolefin-system-resin constituent according to claim 1, 2, 3, 4, 5, 6, or 7 which is acrylate.
[Claim 9]The refining polyolefin-system-resin constituent according to claim 1, 2, 3, 4, 5, 6, or 7 a phosphite system compound has an independent phosphorus system antioxidant, or it is [constituent] a mixture.
[Claim 10]The refining polyolefin-system-resin constituent according to claim 1, 2, 3, 4, 5, 6, or 7 sulfur content organic ester of a sulfur system antioxidant is independent, or it is [constituent] a mixture.
[Claim 11](Meta), [an acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] The refining polyolefin-system-resin constituent according to claim 1, 2, 3, 4, 5, 6, or 7 whose 2-t-butyl-6-(3-t-butyl-2-hydroxy-5-methyl benzine)-4-methylphenyl acrylate and phosphorus system antioxidant are tris nonylphenyl phosphite.
[Claim 12]Before impregnating crystalline polyolefin (a) with a vinyl system monomer component (b), To aqueous suspension, an acrylic (meta) group content phenol system compound, an acrylic (meta) group content sulfur system compound, The refining polyolefin-system-resin constituent according to claim 2, 3, 4, 5, 6, 7, 8, 9, 10, or 11 which mixes at least

one sort chosen from a phenolic antioxidant, a phosphorus system antioxidant, and a sulfur system antioxidant.

[Claim 13]When polymerizing a vinyl system monomer component (b), an acrylic (meta) group content phenol system compound, (Meta) The refining polyolefin-system-resin constituent according to claim 2, 3, 4, 5, 6, 7, 8, 9, 10, or 11 which mixes at least one sort chosen from an acrylic group content sulfur system compound, a phenolic antioxidant, a phosphorus system antioxidant, and a sulfur system antioxidant to aqueous suspension.

[Claim 14]An acrylic (meta) group content phenol system compound after polymerizing a vinyl system monomer component (b), (Meta) The refining polyolefin-system-resin constituent according to claim 2, 3, 4, 5, 6, 7, 8, 9, 10, or 11 which mixes at least one sort chosen from an acrylic group content sulfur system compound, a phenolic antioxidant, a phosphorus system antioxidant, and a sulfur system antioxidant to aqueous suspension.

[Claim 15]A polyolefin-system-resin constituent which mixes Claims 1, 2, 3 and 4, the refining polyolefin-system-resin constituent (E) 0.01 given in 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14 - 100 weight sections to polyolefine (D) 100 weight section.

[Claim 16]The polyolefin-system-resin constituent according to claim 15 whose loadings of a refining polyolefin-system-resin constituent (E) are 0.01 - 20 weight section.

[Claim 17]The polyolefin-system-resin constituent according to claim 15 or 16 which is the propylene system polyolefine produced by polyolefine (D) polymerizing a monomer component containing 50 weight % or more of propylene.

[Claim 18]As opposed to propylene system polyolefine 100 weight section produced by polyolefine (D) polymerizing a monomer component containing 50 weight % or more of propylene, The polyolefin-system-resin constituent according to claim 15 or 16 which mixes 0.1 to ethylene system polyolefine 100 weight section produced by polymerizing a monomer component containing 50 weight % or more of ethylene.

[Claim 19]As opposed to polyolefine (D) 100 weight section, A polyolefin-system-resin constituent which mixes Claims 1, 2, 3 and 4, the refining polyolefin-system-resin constituent (E) 0.01 given in 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14 - 100 weight sections and the inorganic bulking agent (F) 0.1 - 1000 weight sections.

[Claim 20]To polyolefine (D) 100 weight section, Claims 1, 2, 3 and 4, the refining polyolefin-system-resin constituent (E) 0.01 given in 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14 - 100 weight sections, (Meta) An acrylic group content phenol system compound and (or) (meta) the acrylic group content sulfur system compound (B) 0.01 - 20 weight sections, And (or) a polyolefin-system-resin constituent which was chosen from a phenolic antioxidant, a phosphorus system antioxidant, and a sulfur system antioxidant and which mixes at least one sort of 0 - 20 weight sections.

[Claim 21]To polyolefine (D) 100 weight section, Claims 1, 2, 3 and 4, the refining polyolefin-

system-resin constituent (E) 0.01 given in 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14 - 100 weight sections, The inorganic bulking agent (F) 0.1 - 1000 weight sections, an acrylic (meta) group content phenol system compound and (or) (meta) the acrylic group content sulfur system compound (B) 0.01 - 20 weight sections, And (or) a polyolefin-system-resin constituent which was chosen from a phenolic antioxidant, a phosphorus system antioxidant, and a sulfur system antioxidant and which mixes at least one sort of 0 - 20 weight sections.

[Claim 22]They are extrusion or a Plastic solid which carries out calendering shaping about Claims 1, 2, 3 and 4, a refining polyolefin-system-resin constituent given in 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14, or the polyolefin-system-resin constituent according to claim 15, 16, 17, 18, 19, 20, or 21.

[Claim 23]A film or a sheet-shaped Plastic solid which consists of Claims 1, 2, 3 and 4, a refining polyolefin-system-resin constituent given in 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14, or the polyolefin-system-resin constituent according to claim 15, 16, 17, 18, 19, 20, or 21.

[Claim 24]Uniaxial orientation, the film according to claim 23 which comes to carry out biaxial orientation, or a sheet-shaped Plastic solid.

[Claim 25]They are vacuum forming or a Plastic solid which carries out pressure forming to the film according to claim 23 or a sheet-shaped Plastic solid.

[Claim 26]A blow molding object which consists of Claims 1, 2, 3 and 4, a refining polyolefin-system-resin constituent given in 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14, or the polyolefin-system-resin constituent according to claim 15, 16, 17, 18, 19, 20, or 21.

[Claim 27]Extrusion blow molding or the blow molding object according to claim 26 which carries out injection blow molding.

[Claim 28]An injection-molding object which consists of Claims 1, 2, 3 and 4, a refining polyolefin-system-resin constituent given in 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14, or the polyolefin-system-resin constituent according to claim 15, 16, 17, 18, 19, 20, or 21.

[Claim 29]Claims 1, 2, 3 and 4, a fizz resin composition which blends one to foaming agent 50 weight section to refining polyolefin-system-resin constituent 100 weight section given in 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14.

[Claim 30]A fizz resin composition which blends one to foaming agent 50 weight section to the polyolefin-system-resin constituent 100 weight section according to claim 15, 16, 17, 18, 19, 20, or 21.

[Claim 31]Foam which consists of the fizz resin composition according to claim 29 or 30.

[Claim 32]Per compound 100 weight section of at least one sort of nonpolar polymer, and at least one sort of polar polymer, It is the compound which blended Claims 1, 2, 3 and 4 and 0.1 to refining polyolefin-system-resin constituent 10 weight section given in 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14, A resin composition which excels a compound of nonpolar polymer and polar polymer without a refining polyolefin-system-resin constituent in compatibility.

[Claim 33]The resin composition according to claim 32 whose blending ratios of nonpolar polymer and polar polymer are 95:5-5:95 in a weight ratio.
[Claim 34]The resin composition according to claim 32 or 33 whose nonpolar polymer is polyolefine.
[Claim 35]Polar polymer Polystyrene, acrylic ester (meta) polymer, A styrene acrylonitrile copolymer, an ethylene-vinyl alcohol copolymer, The resin composition according to claim 32, 33, or 34 which is at least one sort chosen from polyamide, polyester, polycarbonate, polyphenylene ether, polyvinyl chloride, acrylonitrile-butadiene-styrene copolymer, and polyvinylidene chloride.

[Detailed Description of the Invention]
[0001]
[Industrial Application]This invention relates to the Plastic solid which consists of a refining polyolefin-system-resin constituent, the polyolefin-system-resin constituent containing it, a fizz resin composition that contains a foaming agent in these, and them. The refining polyolefin-system-resin constituent which reveals the improvement effect of the workability where melting characteristics were improved, and which was excellent in more detail, and thermal stability, Workability, shock resistance which contained this refining polyolefin-system-resin constituent, and were excellent, It has characteristics, such as rigidity, surface nature, and thermal stability, simultaneously, and is related with the Plastic solid which consists of the polyolefin resin composition which can be used conveniently for various Plastic solids etc., a fizz resin composition which contains a foaming agent in these, and them.
[0002]
[Description of the Prior Art]Conventionally, polyolefine is inexpensive, and since it excels in the physical characteristic, it is widely used for various Plastic solids etc.
[0003]However, for example, [polypropylene] Since the viscosity and tension at the time of melting are small, the vacuum-forming nature of a sheet. Are inferior to workability, such as (it is hereafter called thermoforming nature), calender formability, blow molding nature, and foaming nature, There is a fault also in respect of the characteristics that rigidity and the shock resistance in low temperature are small, and inferior to surface nature (surface gloss), hardness, spreading nature, etc. as compared with polystyrene, polyvinyl chloride, ABS plastics, etc.
[0004]Generally polyethylene etc. are mechanically mixed in order to improve the workability and characteristics of said polypropylene, but since the improvement effect of workability or characteristics is insufficient, a lot of polyethylene is needed and there is a fault that the rigidity

of the mixture obtained falls. Although the trial which improves the viscosity and tension at the time of the melting by enlarging the molecular weight of polypropylene is performed, there is a big problem that the extrusion which is one of important working processes is difficult for polypropylene with large molecular weight.

[0005]Although the acrylic polymer unconstructed a bridge is added in polyethylene and improving the workability and characteristics is proposed (U.S. Pat. No. 4156703 Description), Since both compatibility is insufficient and an acrylic polymer has not constructed a bridge, At the time of calender molding, at the time of extrusion, etc., this acrylic polymer dissociates from polyolefine, and adheres to the roll side of a calender, the die surface of an extruder, etc. (this is hereafter called plate out), and there is a problem that workability and characteristics fall on the contrary.

[0006][the purpose of improving workability and characteristics, such as the thermoforming nature of said polypropylene,] It is under [hydrocarbon solvent] setting. The method of adding to polypropylene the mixture of the polyolefine in which polyolefine methacrylate polymer and methacrylate which are produced by polymerizing a methacrylate monomer under existence of polyolefine carried out the graft is tried (JP,H2-22316,A). However, in order to make the improvement effect of workability or characteristics fully reveal by such a method, this mixture is required for a large quantity, and since the high temperature solution polymerizing method is moreover used, there is a problem in respect of a manufacturing cost and safety. It is necessary to remove a solvent at the time of mixing of polyolefine, and there is a problem of being inferior to workability and safety.

[0007]A vinyl monomer is polymerized among aqueous suspension as another method at the temperature in which polypropylene does not carry out melting substantially under existence of polypropylene particles (JP,S58-53003,B), By adding the vinyl polymerization object grains containing the obtained polypropylene particles in polypropylene, the trial which is going to improve workability and characteristics, such as the thermoforming nature of polypropylene, is made (JP,S59-14061,B).

[0008]Although the vinyl polymerization object grains containing said polypropylene particles are characterized by distributing homogeneously, without a very small dispersion unit condensing in a mixture at the time of the addition to polypropylene, [grains] Compatibility with polypropylene is insufficient and there is a problem [effect / of the workability of polypropylene or characteristics / improvement] substantially of being insufficient, only by only carrying out very small dispersion of the vinyl polymerization object containing these polypropylene particles homogeneously to polypropylene.

[0009]Although the method of making it mix mechanically and generally introducing rubber compositions, such as ethylene-propylene rubber, in order to improve the shock resistance of polypropylene, the method of carrying out block copolymerization and introducing, etc. are

performed, Since control of a dispersed particle diameter is difficult for the method of making it mix mechanically and introducing a rubber composition, or the method of carrying out block copolymerization and introducing, they become the operating efficiency of a rubber composition is low and insufficient [the shock-proof improvement effect]. As a result, a lot of rubber compositions are needed and there is a fault that the rigidity of the mixture obtained falls. It originates in the particle diameter of the rubber composition currently distributed being large, and there is a fault that surface gloss falls.

[0010]Conventionally, the denaturant of the core shell mold widely used as a shock-proof improving agent in polyvinyl chloride system resin etc. can distribute efficiently the rubber composition (core layer) of the particle diameter set up beforehand, can press down a rigid fall, and can improve shock resistance. However, to the polyolefine which is non-polarity, there is a problem that the denaturant of this core shell mold has small compatibility, and it can hardly be used.

[0011]then -- although adding the denaturant of said core shell mold under existence of a specific compatibilizer to polyolefine is proposed (JP,H3-185037,A.) The synthesizing process of a U.S. Pat. No. 4997884 Description and said compatibilizer is complicated, and there are problems, like the cost rise by use of this compatibilizer and a system become complicated.

[0012]Thus, it waits eagerly for development of polyolefin system resin with which the actual condition is that polyolefin system resin with which it is simultaneously satisfied of outstanding characteristics, such as workability, shock resistance, rigidity, and surface nature, is not yet proposed, and it is simultaneously satisfied of these workability and characteristics.

[0013]

[Problem to be solved by the invention]When it adds to polyolefine, [this invention] When it adds to the mixture of the resin which raises the moldability of polyolefine, and the thermal stability at the time of processing, and improves the workability of polyolefine and in which polarity differs, It has the effect of improving compatibility and aims at providing the refining polyolefin-system-resin constituent which gives the Plastic solid which presents simultaneously outstanding workability, shock resistance, rigidity and surface nature, and thermal stability, when the very thing itself is fabricated further.

[0014]By blending said refining polyolefin-system-resin constituent, this invention has the outstanding workability and an object of this invention is to provide the polyolefin-system-resin constituent which gives the mold goods which present simultaneously shock resistance, rigidity, surface nature, and thermal stability.

[0015]. Are obtained by this invention fabricating said refining polyolefin-system-resin constituent. It aims at providing the extrusion molding body, the calendering Plastic solid, the film or the sheet-shaped Plastic solid, the vacuum-forming object, the pressure-forming object, blow molding object, and injection-molding object which present outstanding shock resistance,

rigidity, surface nature, etc.

[0016]It aims at providing the extrusion molding body, the calendering Plastic solid, the film or the sheet-shaped Plastic solid, the vacuum-forming object, the pressure-forming object, blow molding object, and injection-molding object which present outstanding shock resistance, rigidity, surface nature, etc. which are produced by this invention fabricating said polyolefin-system-resin constituent.

[0017]An object of this invention is to provide the refining polyolefine system fizz resin composition which presents the shock resistance, rigidity, and surface nature which were excellent when it was made the foam produced by blending a foaming agent with said refining polyolefin-system-resin constituent.

[0018]An object of this invention is to provide the polyolefine system fizz resin composition which presents the shock resistance, rigidity, and surface nature which were excellent when it was made the foam produced by blending a foaming agent with said polyolefin-system-resin constituent.

[0019]An object of this invention is to provide the foam which presents the outstanding shock resistance, rigidity, and surface nature which consist of a refining polyolefine system fizz resin composition or a polyolefine system fizz resin composition.

[0020]An object of this invention is to provide a resin composition whose compatibility of polar different resin improved by blending a refining polyolefin-system-resin constituent.

[0021]

[Means for solving problem]that is, to 100 copies of polymerizing denaturation polyolefines (A) under existence of 100 copies (a weight section and the following -- the same) of crystalline polyolefin (a), [this invention] [1-500 copies of vinyl system monomer components (b)] (Meta) An acrylic group content phenol system compound, 0.01-20 copies of acrylic group content sulfur system compounds (B), and a phenolic antioxidant, a refining polyolefin-system-resin constituent which was chosen from a phosphorus system antioxidant and a sulfur system antioxidant and with which it makes it come at least to mix 1 sort (C)0-20 copy -- preferably, 1-500 copies of vinyl system monomer components (b) and these 100 copies of vinyl system monomer components (b) are received to 100 copies of crystalline polyolefin (a). Aqueous suspension containing 0.01-10 copies of radical polymerization initiators (c) is heated under conditions on which it remains as it is or a vinyl system monomer component (b) does not polymerize substantially, This crystalline polyolefin (a) is impregnated with this vinyl system monomer component (b), As opposed to 100 copies of denaturation polyolefines (A) which furthermore heat this aqueous suspension to temperature beyond temperature to which a crystal part of this crystalline polyolefin (a) starts fusion substantially, and make a vinyl system monomer component (b) come to polymerize, (Meta) An acrylic group content phenol system compound and (or) (meta) 0.01-20 copies of acrylic group content sulfur system compounds

(B), As opposed to a refining polyolefin resin composition and 100 copies of polyolefines (D) which were chosen from a phenolic antioxidant, a phosphorus system antioxidant, and a sulfur system antioxidant and with which it makes it come at least to mix 1 sort (C)0-20 copy, A polyolefin-system-resin constituent which mixes any 0.01-100 copies of said refining polyolefin-system-resin constituent (E), said desirable refining polyolefin-system-resin constituent, or a still more desirable refining polyolefin-system-resin constituent mentioned later, To 100 copies of polyolefines (D), said refining polyolefin-system-resin constituent (E), A polyolefin-system-resin constituent which mixes any 0.01-100 copies and 0.1-1000 copies of inorganic bulking agents (F) of said desirable refining polyolefin-system-resin constituent or a still more desirable refining polyolefin-system-resin constituent mentioned later, To 100 copies of polyolefines (D), said refining polyolefin-system-resin constituent (E), Any 0.01-100 copies of said desirable refining polyolefin-system-resin constituent or a still more desirable refining polyolefin-system-resin constituent mentioned later, (Meta) An acrylic group content phenol system compound, 0.01-20 copies of acrylic group content sulfur system compounds (B), and (or) a phenolic antioxidant, At least one sort (C) chosen from a phosphorus system antioxidant and a sulfur system antioxidant As opposed to a polyolefin-system-resin constituent and 100 copies of polyolefines (D) which mix 0-20 copies, Any 0.01-100 copies of said refining polyolefin-system-resin constituent (E), said desirable refining polyolefin-system-resin constituent, or a still more desirable refining polyolefin-system-resin constituent mentioned later, 0.1-1000 copies of inorganic bulking agents (F), an acrylic (meta) group content phenol system compound, 0.01-20 copies of acrylic group content sulfur system compounds (B), and (or) a phenolic antioxidant, At least one sort (C) chosen from a phosphorus system antioxidant and a sulfur system antioxidant A polyolefin-system-resin constituent which mixes 0-20 copies, Extrusion which consists of either of said various refining polyolefin-system-resin constituents, or either of said various polyolefin-system-resin constituents, or a Plastic solid which carries out calendering shaping, A film or a sheet-shaped Plastic solid which consists of either of said various refining polyolefin-system-resin constituents, or either of said various polyolefin-system-resin constituents, To either said film or a sheet-shaped Plastic solid, vacuum forming or a Plastic solid which carries out pressure forming, A blow molding object which consists of either of said various refining polyolefin-system-resin constituents, or either of said various polyolefin-system-resin constituents, An injection-molding object which consists of either of said various refining polyolefin-system-resin constituents, or either of said various polyolefin-system-resin constituents, A fizz resin composition which blends 1-50 copies of foaming agents to any 100 copies of either of said various refining polyolefin-system-resin constituents, or said various polyolefin-system-resin constituents, It is the constituent which blended any 0.1-10 copies of per 100 copies of compounds of foam and at least one sort of nonpolar polymer which consist of either of said various fizz resin compositions, and at least one sort of

polar polymer, and said various refining polyolefin-system-resin constituents, It is related with a resin composition which excels a compound of nonpolar polymer and polar polymer without either of said various refining polyolefin-system-resin constituents in compatibility.
[0022]
[Function and Example(s)][the refining polyolefin-system-resin constituent of this invention] As opposed to 100 copies of denaturation polyolefines (A) which make 1-500 copies of vinyl system monomer components (b) come to polymerize under the existence of 100 copies of crystalline polyolefin (a) like the above-mentioned, (Meta) Inside [it is an acrylic group content phenol system compound, 0.01-20 copies of acrylic group content sulfur system compounds (B) and a phenolic antioxidant, a phosphorus system antioxidant, and a sulfur system antioxidant] mixes 1 sort (C)0-20 copy at least.
[0023][the denaturation polyolefine (A) which makes 1-500 copies of vinyl system monomer components (b) come to polymerize under the existence of 100 copies of crystalline polyolefin (a) which is the aforementioned (A) component] In manufacturing mold goods with a refining polyolefin-system-resin constituent independent, In order to play a role of a good component of workability, shock resistance, rigidity, surface nature, and thermal stability, When mixing a refining polyolefin-system-resin constituent with polypropylene etc. and using it as a modifier of polyolefine, it is a component used in order to play a role of a modifier which improves workability, shock resistance, rigidity, surface nature, and thermal stability.
[0024]Generally a part of vinyl system monomer component (b) is carrying out the graft of the denaturation polyolefine (A) to crystalline polyolefin (a).
Although the improvement effects, such as workability, are mainly revealed with the graft copolymer, what lessens a part for a gel as much as possible, and improved dispersibility from the point of making the engine performance of the graft copolymer fully reveal is preferred.

[0025][the crystalline polyolefin (a) used when manufacturing denaturation polyolefine (A)] In order to make the effect of improving the workability, the shock resistance, the rigidity, surface nature, and thermal stability which are required of denaturation polyolefine (A) reveal, it is a component for making it easy to distribute in polyolefine (D).
What was excellent in polyolefine (D) and compatibility is preferred.

[0026]On the other hand, a vinyl system monomer component (b) is a component for playing the role of forming the graft copolymer which makes the effect of improving the workability in denaturation polyolefine (A), etc. revealing.
A copolymeric large thing with crystalline polyolefin (a) is preferred.

[0027]Although the operating rate of a vinyl system monomer component (b) over 100 copies

of crystalline polyolefin (a) is 1-500 copies, [a rate] [point / that the graft copolymer which makes the improvement effects, such as workability, reveal can be formed] It is desirable from the point of being easy to form the graft copolymer which may reveal the effect that it improves workability that the least amounts are five or more copies and ten more copies or more. As for the maximum quantity, it is preferred from a point of the stability at the time of a polymerization (condensation, weld, and agglomeration are not produced) that they are 200 or less copies and 100 more copies or less.

[0028][as an example of said crystalline polyolefin (a)] the propylene homopolymer (for example, isotactic polypropylene.) which has crystallinity propylene, such as syndiotactic polypropylene, 75% (weight %.) the propylene system polyolefine (for example, ethylene.) produced by polymerizing the monomer component which contains the above like the following [one or more sorts, such as alpha olefin and an ethylenic unsaturated monomer, of copolymer etc.] [as an example] For example, a propylene-ethylene random copolymer, a propylene-ethylene block copolymer, etc., an ethylene homopolymer (for example, high density polyethylene and low density polyethylene.) Rubber-like objects, such as alpha olefin homopolymers (for example, poly-1-butene, polyisobutylene, polymethylpentene, etc.), such as linear low density polyethylene, and ethylene-propylene rubber, etc. are raised. These are independent, or can mix and use two or more sorts. [in said crystalline polyolefin (a)] [the refining polyolefin-system-resin constituent obtained] It excels in compatibility with the polyolefine (D) mentioned later, especially propylene system polyolefine, The propylene system polyolefine produced from the point that the improvement effect of workability may fully be revealed, by polymerizing the monomer component containing more than propylene 75% is preferred, and the propylene system polyolefine produced by polymerizing the monomer component containing more than propylene 90% is still more preferred.

[0029]Latex, dispersion, etc. which there is no limitation in the shape of said crystalline polyolefin (a) or the method in particular of existence, for example, the pellet whose mean particle diameter is about 1-5 mm, the powder whose mean particle diameter is about 200-1000 micrometers, and these distributed to the hyphydrogamy inside of the body are raised. Among these, it is preferred that it is a pellet the point of being flexible to whose mean particle diameter is about 1-5 mm.

[0030][as an example of said vinyl system monomer component (b)] For example, aromatic vinyl system compounds, such as styrene and alpha-methylstyrene; Methyl methacrylate, Ethyl methacrylate, methacrylic acid n-butyl, methacrylic acid i-butyl, Methacrylic acid alkyl ester whose carbon numbers of methacrylic acid t-butyl and 2-ethylhexyl methacrylate, stearyl methacrylate, for example, an alkyl group, etc. are 1-22; Methyl acrylate, Ethyl acrylate, acrylic acid n-butyl, acrylic acid i-butyl, Acrylic acid alkyl ester whose carbon numbers of acrylic acid t-butyl and 2-ethylhexyl acrylate and stearyl acrylate, for example, an alkyl group, are 1-22;

Acrylonitrile, [these / unsaturated nitrile compounds, such as methacrylonitrile, and] [copolymerizable] Maleic anhydride, methacrylic acid, acrylic acid, methacrylamide, acrylamide, Other vinyl system monomers which have reactive functional groups, such as acid anhydride groups, such as dimethylaminoethyl methacrylate, acrylic acid dimethylaminoethyl, hydroxyethyl methacrylate, and hydroxyethyl acrylate, a carboxyl group, an amino group, and a hydroxy group, are raised. These are independent, or can mix and use two or more sorts.

[0031]The methyl thiomethyl (meta) acrylate which is the (B) component mentioned later in order to raise the thermal stability of denaturation polyolefine (A), Ethyl thiomethyl (meta) acrylate, methylthioethyl (meta) acrylate, Alkylthio alkyl (meta) acrylate, such as ethylthioethyl (meta) acrylate, 2-t-butyl-6-(3-t-butyl-2-hydroxy-5-methylbenzyl)-4-methylphenyl (meta) acrylate, the acrylate which has phenol groups, such as 2-[1-(2-hydroxy-3,5-di-t-pentylphenyl) ethyl]-4,6-t-pentylphenyl (meta-) acrylate (meta-) -- a kind can also be used with the aforementioned (b) component at least.

[0032][the acrylate which has the alkylthio alkyl (meta) acrylate and (or) the phenol group which are used in order to raise the thermal stability of said denaturation polyolefine (A) (meta)] It can be made to contain 0.01 to 10% to the total quantity of said vinyl system monomer component (b) and the (B) component, and what is necessary is just to use the (B) component in this case, so that the total quantity may become the range of 0.01-20 copies to 100 copies of denaturation polyolefines (A).

[0033]In order to deal in the refining polyolefin-system-resin constituent which may more fully reveal the improvement effect of workability in this invention at the time of mixing with the polyolefine (D) mentioned later, When the flexibility of a monomer component and the field of cost to be used are taken into consideration, [in said vinyl system monomer component (b)] An aromatic vinyl system compound, the methacrylic acid alkyl ester whose carbon numbers of an alkyl group are 1-22, and ********** 1-4, What serves as at least one-sort not less than 80% and these which were chosen from the acrylic acid alkyl ester and the unsaturated nitrile compound whose carbon numbers of an alkyl group are 1-22, and ********** 1-8 from 20% or less of a vinyl system monomer besides the copolymerizable above is preferred, and Styrene, What consists of at least one-sort not less than 80% and these which were chosen from methyl methacrylate and acrylic acid n-butyl, and 20% or less of other copolymerizable vinyl system monomers is still more preferred, and styrene, methyl methacrylate, and especially acrylic acid n-butyl are preferred.

[0034]There is no limitation in particular in the process of said denaturation polyolefine (A), for example, there are a suspension polymerization method, a solution-polymerization method, etc. [the aqueous suspension which contained 0.01-10 copies of radical polymerization initiators (c) to 1-500 copies of vinyl system monomer components (b), and these 100 copies of vinyl monomer components (b) to 100 copies of suspension polymerization methods (a),

i.e., crystalline polyolefin, especially] It heats under the conditions on which a vinyl system monomer component (b) does not polymerize substantially by a case, Crystalline polyolefin (a) is impregnated with this vinyl system monomer component (b), The method of heating this aqueous suspension furthermore to the temperature beyond the temperature to which the crystal part of this crystalline polyolefin (a) starts fusion substantially, and polymerizing a vinyl system monomer component (b) is preferred from a point of a manufacturing cost and safety.

[0035]If a refining polyolefin-system-resin constituent is prepared using the denaturation polyolefine (A) manufactured by the method like the above, it can deal in workability, shock resistance, rigidity, surface nature, and the refining polyolefin-system-resin constituent that has the feature of excelling in a thermal stability improvement further.

[0036]Although there is no limitation in particular in said radical polymerization initiator (c), the crystalline polyolefin (a) which is in a molten state substantially is made to generate the radical starting point, It is preferred that the half-life at about 50-200 ** is what is about 1 hour from the point that polymerization of a vinyl system monomer component (b) and graft-ization can be advanced efficiently. In order to deal in the refining polyolefin-system-resin constituent which may more fully reveal the improvement effect of workability at the time of mixing with the polyolefine (D) mentioned later, what has high hydrogen drawing-out nature by oil solubility is preferred.

[0037][as a desirable example of said radical polymerization initiator (c)] For example, acetyl peroxide, succinic acid peroxide, t-butyl peroctoate, Benzoyl peroxide (72 **), t-butyl PAOKISHIMAREIN acid, 1-hydroxy-1-hydronalium peroxy dicyclohexyl peroxide, 1,1-bis(tert-butyl peroxide)-3, 3, 5-trimethylcyclohexane (87 **), Tert-butyl peroxide crotonate, 2,2-bis(t-butylperoxy)butane (103 **), T-butylperoxyisopropylcarbonate (99 **), t-butyl par OKISHIBIBA rate (55 **), Lauroyl peroxide (62 **), t-buthylperoxy isobuthylate (77 **), Di-t-butyl peroxide (124 **), 1, 1 and 3, and 3-tetramethyl butylperoxy 2-ethylhexanoate (65 **), 2,5-dimethyl- 2,5-bis(2-ethylhexanoyl peroxy)hexane (66 **), 2,5-dimethyl- 2,5-bis(benzoylperoxy)hexane (100 **), tert-butyl peroxide acetate (103 **), 2,5-********-** (hydronalium peroxy) hexane, t-butyl hydroperoxide (167 **), t-butyl cumyl peroxide (121 **), p-menthonaphtene hydroperoxide (128 **), methyl-ethyl-ketone peroxide (105 **), A di-t-butyl PAOKI shifter rate, t-butyl par oxybenzoate (104 **), JIKUMIRU peroxide (117 **), 2,5-dimethyl- 2,5-di-tert-butyl peroxide hexane (118 **), 2,4-pentanedione peroxide, azobisisobutyronitrile, etc. are raised. Di-t-butyl peroxide, especially t-butyl par oxybenzoate, etc. are especially preferred. These are independent or can be used together two or more sorts. 10 hour half life period temperature was shown in () behind said example.

[0038]T-50 to T-10 ** of heating under the conditions on which said vinyl system monomer component (b) does not polymerize substantially means heating to the temperature (T shows 10 hour half life period temperature (**) of a radical polymerization initiator (c)) preferably

denoted by T-40 to T-10 **. A vinyl system monomer component (b) becomes by heating said aqueous suspension to this temperature that crystalline polyolefin (a) is easy to be impregnated, It is desirable in order to control that a vinyl system monomer component (b) forms another independent particulate material to crystalline polyolefin (a), and a polymerization advances as it is.

[0039]The crystalline polyolefin used for the time of such heating (a), Since it changes with kinds of vinyl system monomer component (b), etc., cannot generally determine, but. said aqueous suspension -- fixed time -- it is preferred by heating to such a temperature that vinyl system monomer components (b) are usually about 5 or less hours and about further 0.5 to 2 hours from the viewpoint that crystalline polyolefin (a) is impregnated about 100%.

[0040][heat / to the temperature beyond the temperature to which the crystal part of said crystalline polyolefin (a) starts fusion substantially] About crystalline polyolefin (a), by a DSC measurement method, by a part for heating-rate/of 10 ** Under a nitrogen air current (a part for 40-ml/), It says heating to a temperature higher than the fusion starting temperature and a middle temperature of a melting point (temperature equivalent to the peak of the peak in a melting curve) which carried out temperature up and were acquired to the temperature thoroughly dissolved from a room temperature as a result of measurement.

[0041]Since time to heat to this temperature changes with kinds etc. of the crystalline polyolefin (a) to be used and vinyl system monomer component (b), it cannot generally decide on it, but it is preferred that it is usually about 0.5 to 10 hours.

[0042]When it heats to the temperature whose crystal part of crystalline polyolefin (a) is lower than the temperature which starts fusion substantially, the polymerization of vinyl system monomer components (b) advances, but. In order that a vinyl system monomer component (b) may not fully carry out a graft to crystalline polyolefin (a), The tendency it to become difficult to deal in the refining polyolefin-system-resin constituent which makes the improvement effect of workability of what can carry out minute dispersion of the polymer in which the vinyl system monomer component (b) polymerized fully reveal is in crystalline polyolefin (a).

[0043]As described above, when it heats beyond the temperature to which the crystal part of crystalline polyolefin (a) starts fusion substantially, on the other hand, The rate of the amorphous portion in crystalline polyolefin (a) increases, and simultaneously with the polymerization of vinyl system monomer components (b). A vinyl system monomer component (b) fully carries out a graft especially to the amorphous portion of crystalline polyolefin (a), and it becomes easy to deal in the refining polyolefin-system-resin constituent which makes the improvement effect of workability fully reveal.

[0044]Said cooking temperature increases the rate of the amorphous portion in crystalline polyolefin (a), and promotes graft-ization of the vinyl system monomer component (b) to an amorphous portion, From the point that moreover cutting or the gelling of a polyolefin chain by

superfluous heating do not take place too much, it is preferred that they are a melting point of **20 ** and a ********** melting point of **10 **. About 160-170 ** and propylene system polyolefine are about 135-150 **, and polypropylene is [polyethylene of the melting point of typical crystalline polyolefin (a)] about 138 ** etc.

[0045]Like the above, it is the feature that the refining polyolefin-system-resin constituent of this invention contains the denaturation polyolefine (A) in which the graft of the vinyl system monomer component (b) was carried out.

Although homogeneity fine smallness can also be made to distribute the polymer of a vinyl system monomer component (b) at the time of mixing with the polyolefine (D) mentioned later, The influence which the polyolefine in which the graft of the vinyl system monomer component (b) was carried out has on revelation of the improvement effect of workability is greater than the influence which homogeneity minute dispersion of the polymer of this vinyl system monomer component (b) has on revelation of the improvement effect of workability.

[0046]The concrete process by said water suspension polymerization method is the same as that of the usual water suspension polymerization method except the point that crystalline polyolefin (a) exists in a system. For example, crystalline polyolefin (a) is made suspended, and what is necessary is just to make it polymerize using water, suspension, an emulsifier, a dispersant, etc. suitably, and, [such kinds and quantity] As long as the water suspension-polymerization thing which consists of a reaction mixture of each component is kept excessive in the stable state under monograph affairs, such as temperature in a manufacturing process, a pressure, and churning, to such an extent that [condense and] it does not weld, there is no limitation.

[0047]As these kinds and an example in which quantity is preferred, about 1.5 copies of calcium phosphate and the example which about 0.05 copy of RATEMURU PS (made by Kao Corp.) uses as an emulsifier are given as a dispersant to 100 copies of crystalline polyolefin (a).

[0048]In order to optimize the molecular weight of the branch of a graft copolymer, a proper quantity of polymerization inhibitor, such as chain transfer agents, such as n-dodecyl mercaptan usually used, p-benzoquinone, and 1,1-diphenyl-2-picrylhydrazyl, polymerization retarders, etc. can also be used.

[0049]The resultant acquired with this water suspension polymerization method usually contains as a component a graft copolymer, the polyolefine by which a graft is not carried out, and the polymer (henceforth a vinyl system polymer) in which the vinyl system monomer (b) which has not carried out a graft polymerized. The primary structure of the graft copolymer in these components can be presumed by conducting judgment of the constituent in a resultant, and analysis.

[0050][for example by carrying out the heating and dissolving of the resultant to hydrocarbon system solvents, such as xylene, adding the good solvent of vinyl system polymers, such as methyl ethyl ketone, if required, and cooling an after this solution] The vinyl system polymer which has not carried out a graft to the mixture of the polyolefine by which a graft is not carried out to a graft copolymer can be classified as a precipitate and a melted object in a solution, respectively.

[0051]refining the classified vinyl system polymer which has not carried out a graft, and measuring the weight -- or, The content of the vinyl system polymer branch in a graft rate or a graft copolymer can be measured by refining the mixture of the classified graft copolymer and the polyolefine which is not graft-ized, and conducting a ultimate analysis etc.

[0052]The molecular weight of the branch of a graft copolymer can be presumed by refining the classified vinyl system polymer which has not carried out a graft, and measuring the molecular weight. In this invention, it was considered as = (molecular weight of the branch of a graft copolymer) (molecular weight of the vinyl system polymer which has not carried out a graft).

[0053][usually the molecular weight of the branch of the graft copolymer obtained in this water suspension polymerization method] In the polystyrene reduced property in GPC measurement, as a weight average molecular weight, about 1000-2 millions, Although concomitant use of the minute quantity of catalyst species, quantity, polymerization temperature, the kind of monomer, concentration, a chain transfer agent, polymerization inhibitor, or a polymerization retarder, etc. can be adjusted by adjusting various conditions about a polymerization, In this invention, the weight average molecular weights of the branch of the graft copolymer which makes the workability improvement effect of polyolefine reveal effectively especially are 10000-1 million preferably.

[0054]The content of the branch of the vinyl system polymer in the graft copolymer in the resultant acquired in this water suspension polymerization method is usually about 0.1 to 30% in the weight ratio to the whole resultant.

[0055]When the resultant acquired in this water suspension polymerization method is observed with an electron microscope, change with polymerization formulas, but. By the domain with a mean dispersion grain size of about about 0.01-10 micrometers and a small thing, the vinyl system polymer distributed in an about 0.01-0.08-micrometer domain at homogeneity fine smallness can be checked in polyolefine. This is presumed to be a vinyl system polymer which has not mainly carried out a graft. The dispersion state in the graft copolymer was not able to be observed with an electron microscope.

[0056]The acrylic group content phenol system compound and (or) (meta) acrylic group content sulfur system compound (B) which are the aforementioned (B) components (meta) are a component used in order to stabilize the polymer radical generated with the heat at the time

of processing.
When using it as it is, the trap of the polymer radical is carried out with the acrylic (meta) group in the (B) component, and a radical is stable with the phenol system group and (or) sulfur system group in that after (B) component.
(B) It is under [refining polyolefin-system-resin constituent] setting with such an operation of a component, It has the operation as a stabilizer which controls the oxidation degradation of polyolefine (D) at the time of mixing with the polyolefine (D) which controls and mentions principal chain cutting by the oxidation degradation of crystalline polyolefin (a) later. The effect of a refining polyolefin-system-resin constituent, fully being able to control the physical-properties fall of the workability at the time of the fabricating operation of a polyolefin-system-resin constituent, the shock resistance of mold goods, rigidity, surface nature, etc. further is acquired as a result of such an operation.
[0057][as an example of the aforementioned (meta) acrylic group content phenol system compound] 2-t-butyl-6-(3-butyl-2-hydroxy-5-methylbenzyl)-4-methylphenyl (meta) acrylate, The acrylic ester etc. which have phenol groups, such as 2-[1-(2-hydroxy-3,5-di-t-pentylphenyl) ethyl]-4,6-t-pentylphenyl (meta) acrylate (meta) are raised.
[0058][as an example of the aforementioned (meta) acrylic group content sulfur system compound] Alkylthio alkyl (meta) acrylate, such as methyl thiomethyl (meta) acrylate, ethyl thiomethyl (meta) acrylate, methylthioethyl (meta) acrylate, and ethylthioethyl (meta) acrylate, etc. are raised.
[0059]As a (C) component, at least one sort in a phenolic antioxidant, a phosphorus system antioxidant, and a sulfur system antioxidant is contained in the refining polyolefin-system-resin constituent of this invention, and it sells to it.
[0060]The aforementioned (C) component is a component used with the (B) component for improvement in thermal stability. (C) It has the operation as a stabilizer which controls the oxidation degradation of polyolefine (D) at the time of mixing with the polyolefine (D) which controls and mentions [be / it / under / refining polyolefin-system-resin constituent / setting] principal chain cutting by the oxidation degradation of crystalline polyolefin (a) later by such operation of a component. The effect of a refining polyolefin-system-resin constituent, fully being able to control the physical-properties fall of the workability at the time of the fabricating operation of a polyolefin-system-resin constituent, the shock resistance of mold goods, rigidity, surface nature, etc. further is acquired as a result of such an operation.
[0061][as an example of said phenolic antioxidant] Tetrakis {methylene-3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate} methane, 2,6-di-t-butyl-4-methyl phenol, octadecyl-3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate, A triethylene glycol screw {3-(3-t-butyl-5-methyl-4-hydroxyphenyl) propionate}, Pentaerythrityl tetrakis {3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate}, Hindered phenol system compounds, such as 3,9-screw [2-{PUROPIONIROKISHI

[3 -(3-t-butyl-4-hydroxy-5-methylphenyl)-]]-1,1-dimethylethyl]-2,4,8,10-tetraoxaspiro [5, 5] undecane, As an example of a phosphorus system antioxidant, triphenyl phosphite, tris nonylphenyl phosphite, [as an example of phosphite system compounds, such as tris (2,4-di-t-buthylphenyl) phosphite and bis(nonylphenyl)-dinonylphenyl hosphite, and a sulfur system antioxidant] Sulfur content organic ester, such as dilauryl 3,3'-thiodipropionate, distearyl 3,3'-thiodipropionate, pentaerythrityl tetrakis (3-laurylthio propionate), and di-t-dodecyldisulfide, etc. are raised. These are independent, or can mix and use two or more sorts.

[0062]Tris nonylphenyl phosphite, the dilauryl 3, and especially 3'-thiodipropionate are preferred respectively as a phosphite system compound and sulfur content organic ester also in the aforementioned (C) component.

[0063]The blending ratios of the aforementioned (A) component which constitutes the refining polyolefin-system-resin constituent of this invention, the (B) component, and the (C) component are the (B) component 0.01 - 20 copies and 0-20 copies of (C) components to 100 copies of (A) components. (B) When the blending ratio of a component is less than 0.01 copy, a stabilization effect is low and sufficient thermal stability is not acquired. In surpassing 20 copies, it causes the fall of physical properties, such as mechanical strength of a resin composition, or surface nature obtained. When the blending ratio of the (C) component surpasses 20 copies, the fall of physical properties, such as mechanical strength of a resin composition, or surface nature obtained is caused.

[0064]When the (C) component is 0, it becomes a constituent of the (A) component and the (B) component, but the effect of controlling deterioration of the (A) component by the heat at the time of a fabricating operation by the (B) component in this case is acquired.

[0065]On the other hand, in the case of the constituent containing the (A) component, the (B) component, and the (C) component, the effect of controlling the long-term oxidation degradation in the ordinary temperature of a synergistic effect with the (B) component by using the (C) component and the Plastic solid after a fabricating operation becomes good.

[0066]The desirable least amounts of the blending ratio of the aforementioned (B) component are 0.05 or more copies and 0.1 more or more copies, and the effect of controlling more principal chain cutting by the oxidation degradation of the (A) component in this case is acquired. The desirable maximum quantity of a blending ratio is ten or less copies and five more copies or less, the fall of physical properties, such as mechanical strength, or surface nature is not caused in this case, but the effect of **** for the outstanding thermal stability is acquired. The number of 0.05-10 copies of blending ratios of said viewpoint to the (B) component is 0.1-5 still more preferably preferably, for example.

[0067]The desirable least amounts in the case of using the aforementioned (C) component are 0.05 or more copies and 0.1 more or more copies, and the effect in the case of using the aforementioned (C) component in this case is acquired good. Again. The desirable maximum

quantity of a blending ratio is ten or less copies and five more copies or less, the fall of physical properties, such as mechanical strength, or surface nature is not caused in this case, but the effect of **** for the thermal stability outstanding according to the synergistic effect with the (B) component is acquired. The number of 0.05-10 copies of blending ratios of said viewpoint to the (C) component is 0.1-5 still more preferably preferably, for example.

[0068]Although there is no limitation in particular in the method of preparation of the refining polyolefin-system-resin constituent of this invention which consists of the aforementioned (A) component, a (B) component, and a (C) component, (A) Concrete methods of blending the (B) component with a component involve the method of adding the (B) component in a polymerization reaction system before the polymerization of the (A) component, the method of adding during a polymerization, the method of carrying out polymerization adding after mixing, and methods, such as the method of adding after (A) component isolation, for example.

[0069]From the point that said suspension polymerization method of the polymerization method in the case of adding before said polymerization or during a polymerization is simple, and that it is safe, it is desirable and the (B) component polymerizes like said vinyl system monomer component (b) in this case. In this case, the addition time to said aqueous suspension of the (B) component is desirable from the point of simplification of manufacture (polymerization), before impregnating crystalline polyolefin (a) with a vinyl system monomer component (b). After impregnating crystalline polyolefin (a) with a vinyl system monomer component (b), before a vinyl system monomer component (b) polymerizes substantially, it is desirable from a point of the rate of impregnation to the crystalline polyolefin (a) of a vinyl system monomer component (b).

[0070]After polymerizing a vinyl system monomer component (b) as addition time of the (B) component, adding before isolation is preferred from a point of the graft rate to the crystalline polyolefin (a) of a vinyl system monomer component (b). It is desirable from the point that adding after the end of a polymerization and (A) component isolation can adjust the loadings of the (B) component according to a molding working condition.

[0071]It is especially desirable from the Reason adding after the component isolation after [(A)] the end of a polymerization can adjust the loadings of the (B) component according to a molding working condition also in the above addition time.

[0072]Although there is no limitation in particular in the concrete mode of said mixing method, the usual churning mixing etc. are applied in a polymerization system, and the melt kneading method using the dry blend method or a lab PURASUTO mill using a Henschel mixer etc., etc. is applied in after (A) component isolation.

[0073]As for the (B) component, when a vinyl system monomer component (b) polymerizes and the (B) component is used, it is preferred from a point of a thermal stability improvement that 0.1 to 5% of ********** contains 0.01 to 10% to the total quantity of a vinyl system monomer

component (b) and the (B) component.
[0074](B) it is preferred to carry out at the operating rate of the aforementioned (B) component and a vinyl system monomer component (b) in the case of the acrylic ester which has alkylthio alkyl (meta-) acrylate and (or) a phenol group also in a component (meta-) from the point that the effect to a thermal stability improvement is large.
[0075]On the other hand, there is no limitation in particular also in the (A) component and the method of blending with the (A) component and the (B) component further about the (C) component, for example, it is independent before the polymerization of the (A) component about the (C) component, Or it may add in a polymerization reaction system with the (B) component, or may add during a polymerization, polymerization adding after mixing may be carried out, or it may add after the (A) component and also the (A) component, and (B) component isolation.
[0076]The polymerization method in the case of adding before said polymerization or during a polymerization is preferred from the same Reason as the case where said suspension polymerization method is the (B) component. In this case, the addition time to said aqueous suspension, such as the (C) component, is preferred from the same Reason as the case where it is the (B) component before impregnating crystalline polyolefin (a) with a vinyl system monomer component (b). After impregnating crystalline polyolefin (a) with a vinyl system monomer component (b), before a vinyl system monomer component (b) polymerizes substantially, it is desirable from the same Reason as the case of the (B) component.
[0077]After polymerizing a vinyl system monomer component (b) as addition time of the (C) component, adding before isolation is preferred from the same Reason as the case of the (B) component. It is preferred from the same Reason as the case of the (B) component to add after the end of a polymerization and (A) component isolation.
[0078]It is especially desirable from the Reason adding after the component isolation after [(A)] the end of a polymerization can adjust the loadings of the (C) component according to a process condition also in the above addition time.
[0079]Although there is no limitation in particular in the concrete mode of said combination method, the usual churning mixing etc. are applied in a polymerization system, and the melt kneading method using the dry blend method or a lab PURASUTO mill using a Henschel mixer etc., etc. is applied in after (A) component isolation.
[0080]The appearance of the refining polyolefin-system-resin constituent of this invention produced by making it above is the same as the appearance of crystalline polyolefin (a).
(B) It is the mixture with powder which mixed the component and (or) the (C) component by the dry blend method with powder.

[0081]Although the refining polyolefin-system-resin constituent has been explained centering

on Claim 1 and a constituent given in 2 above, the combination of each constituent features of main constituents, its effect, etc. are indicated below among the constituents which are not yet explained fully with the constituent in which it was already explained.

[0082]As opposed to 100 copies of denaturation polyolefines (A) which make 1-500 copies of vinyl system monomer components (b) come to polymerize under the existence of 100 copies of invention 1 crystalline polyolefin (a), (Meta) An acrylic group content phenol system compound, 0.01-20 copies of acrylic group content sulfur system compounds (B), and a phenolic antioxidant, At least one sort (C) chosen from the phosphorus system antioxidant and the sulfur system antioxidant Refining polyolefin-system-resin constituent with which it makes it come to mix 0-20 copies.

[0083][invention 2 denaturation polyolefine (A)] [the aqueous suspension which contained 0.01-10 copies of radical polymerization initiators (c) to 1-500 copies of vinyl system monomer components (b), and these 100 copies of vinyl system monomer components (b) to 100 copies of crystalline polyolefin (a)] It heats under the conditions which do not polymerize substantially without a vinyl system monomer component (b) heating under the conditions which do not polymerize substantially, This crystalline polyolefin (a) is impregnated with this vinyl system monomer component (b), The refining polyolefin-system-resin constituent of the invention 1 which is a thing which furthermore heats this aqueous suspension to the temperature beyond the temperature to which the crystal part of this crystalline polyolefin (a) starts fusion substantially, and makes a vinyl system monomer component (b) come to polymerize.

[0084]The methacrylic acid alkyl ester whose carbon numbers of an aromatic vinyl system compound and an alkyl group an invention 3-1 vinyl system monomer component (b) is 1-22, The refining polyolefin-system-resin constituent of the invention 1 which is a component which consists of 20% or less of other vinyl system monomers with a as copolymerizable carbon number of an alkyl group as at least one-sort not less than 80% and these which were chosen from the acrylic acid alkyl ester and the unsaturated nitrile compound which are 1-22.

[0085]The methacrylic acid alkyl ester whose carbon numbers of an aromatic vinyl system compound and an alkyl group an invention 3-2 vinyl system monomer component (b) is 1-22, The refining polyolefin-system-resin constituent of the invention 2 which is a component which consists of 20% or less of other vinyl system monomers with a as copolymerizable carbon number of an alkyl group as at least one-sort not less than 80% and these which were chosen from the acrylic acid alkyl ester and the unsaturated nitrile compound which are 1-22.

[0086]The refining polyolefin-system-resin constituent of the invention 1 which is a component which consists of 20% or less of other vinyl system monomers with a as copolymerizable invention 4-1 vinyl system monomer component (b) as at least one-sort not less than 80% and these which were chosen from styrene, methyl methacrylate, and acrylic acid n-butyl.

[0087]The refining polyolefin-system-resin constituent of the invention 2 which is a component

which consists of 20% or less of other vinyl system monomers with a as copolymerizable invention 4-2 vinyl system monomer component (b) as at least one-sort not less than 80% and these which were chosen from styrene, methyl methacrylate, and acrylic acid n-butyl.
[0088]When an invention 5-1 vinyl system monomer component (b) polymerizes, (Meta) An acrylic group content phenol system compound. It reaches (.). Or (meta) 0.01 to 10% (vinyl system monomer component (b).) of acrylic ester which has 0.01 to 10% of the alkylthio alkyl (meta) acrylate and (or) the phenol group which are acrylic group content sulfur system compounds (B) (meta) [all] and the total quantity of the (B) component -- receiving -- the refining polyolefin-system-resin constituent of the invention 1 which it comes to use with a vinyl system monomer component (b).
[0089]When an invention 5-2 vinyl system monomer component (b) polymerizes, (Meta) An acrylic group content phenol system compound. It reaches (.). Or (meta) 0.01 to 10% (vinyl system monomer component (b).) of acrylic ester which has 0.01 to 10% of the alkylthio alkyl (meta) acrylate and (or) the phenol group which are acrylic group content sulfur system compounds (B) (meta) [all] and the total quantity of the (B) component -- receiving -- the refining polyolefin-system-resin constituent of the invention 2 which it comes to use with a vinyl system monomer component (b).
[0090]The refining polyolefin-system-resin constituent of the invention 2 which is the aqueous suspension in which six to invention 1 aqueous suspension contains 1-10 copies of radical polymerization initiators (c) to 100 copies of vinyl system monomer components (b).
[0091]The refining polyolefin-system-resin constituent of the invention 3-2 which is the aqueous suspension in which six to invention 2 aqueous suspension contains 1-10 copies of radical polymerization initiators (c) to 100 copies of vinyl system monomer components (b).
[0092]The refining polyolefin-system-resin constituent of the invention 4-2 which is the aqueous suspension in which six to invention 3 aqueous suspension contains 1-10 copies of radical polymerization initiators (c) to 100 copies of vinyl system monomer components (b).
[0093]The refining polyolefin-system-resin constituent of the invention 5-2 which is the aqueous suspension in which six to invention 4 aqueous suspension contains 1-10 copies of radical polymerization initiators (c) to 100 copies of vinyl system monomer components (b).
[0094]The refining polyolefin-system-resin constituent of the invention 1 which is the propylene system polyolefine in which invention 7-1 crystalline polyolefin (a) polymerizes the monomer component containing more than propylene 75%.
[0095]The refining polyolefin-system-resin constituent of the invention 2 which is the propylene system polyolefine in which invention 7-2 crystalline polyolefin (a) polymerizes the monomer component containing more than propylene 75%.
[0096]The refining polyolefin-system-resin constituent of the invention 3-1 which is the propylene system polyolefine in which invention 7-3 crystalline polyolefin (a) polymerizes the

monomer component containing more than propylene 75%.
[0097]The refining polyolefin-system-resin constituent of the invention 4-1 which is the propylene system polyolefine in which invention 7-4 crystalline polyolefin (a) polymerizes the monomer component containing more than propylene 75%.
[0098]The refining polyolefin-system-resin constituent of the invention 5-1 which is the propylene system polyolefine in which invention 7-5 crystalline polyolefin (a) polymerizes the monomer component containing more than propylene 75%.
[0099]The refining polyolefin-system-resin constituent of the invention 6-1 which is the propylene system polyolefine in which invention 7-6 crystalline polyolefin (a) polymerizes the monomer component containing more than propylene 75%.
[0100][an invention 8-1 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-. (3-t-butyl-2-hydroxy-5-methylbenzyl)-4-methylphenyl (meta) acrylate and (or) a 2-[1-(2-hydroxy-3,5-di-t-pentylphenyl) ethyl]-4,6-t-pentylphenyl. (Meta) The refining polyolefin-system-resin constituent of the invention 1 which is acrylate.
[0101][an invention 8-2 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-. (3-t-butyl-2-hydroxy-5-methylbenzyl)-4-methylphenyl (meta) acrylate and (or) a 2-[1-(2-hydroxy-3,5-di-t-pentylphenyl) ethyl]-4,6-t-pentylphenyl. (Meta) The refining polyolefin-system-resin constituent of the invention 2 which is acrylate.
[0102][an invention 8-3 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-. (3-t-butyl-2-hydroxy-5-methylbenzyl)-4-methylphenyl (meta) acrylate and (or) a 2-[1-(2-hydroxy-3,5-di-t-pentylphenyl) ethyl]-4,6-t-pentylphenyl. (Meta) The refining polyolefin-system-resin constituent of the invention 3-1 which is acrylate.
[0103][an invention 8-4 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-. (3-t-butyl-2-hydroxy-5-methylbenzyl)-4-methylphenyl (meta) acrylate and (or) a 2-[1-(2-hydroxy-3,5-di-t-pentylphenyl) ethyl]-4,6-t-pentylphenyl. (Meta) The refining polyolefin-system-resin constituent of the invention 4-1 which is acrylate.
[0104][an invention 8-5 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-. (3-t-butyl-2-hydroxy-5-methylbenzyl)-4-methylphenyl (meta) acrylate and (or) a 2-[1-(2-hydroxy-3,5-di-t-pentylphenyl) ethyl]-4,6-t-pentylphenyl. (Meta) The refining polyolefin-system-resin constituent of the invention 5-1 which is acrylate.
[0105][an invention 8-6 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-. (3-t-butyl-2-hydroxy-5-

methylbenzyl)-4-methylphenyl (meta) acrylate and (or) a 2-[1-(2-hydroxy-3,5-di-t-pentylphenyl) ethyl]-4,6-t-pentylphenyl. (Meta) The refining polyolefin-system-resin constituent of the invention 6-1 which is acrylate.

[0106][an invention 8-7 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-. (3-t-butyl-2-hydroxy-5-methylbenzyl)-4-methylphenyl (meta) acrylate and (or) a 2-[1-(2-hydroxy-3,5-di-t-pentylphenyl) ethyl]-4,6-t-pentylphenyl. (Meta) The refining polyolefin-system-resin constituent of the invention 7-1 which is acrylate.

[0107]The refining polyolefin-system-resin constituent of the invention 1 a phosphite system compound has an independent invention 9-1 phosphorus system antioxidant, or it is [invention] a mixture.

[0108]The refining polyolefin-system-resin constituent of the invention 2 a phosphite system compound has an independent invention 9-2 phosphorus system antioxidant, or it is [invention] a mixture.

[0109]The refining polyolefin-system-resin constituent of the invention 3-1 a phosphite system compound has an independent invention 9-3 phosphorus system antioxidant, or it is [invention] a mixture.

[0110]The refining polyolefin-system-resin constituent of the invention 4-1 a phosphite system compound has an independent invention 9-4 phosphorus system antioxidant, or it is [invention] a mixture.

[0111]The refining polyolefin-system-resin constituent of the invention 5-1 a phosphite system compound has an independent invention 9-5 phosphorus system antioxidant, or it is [invention] a mixture.

[0112]The refining polyolefin-system-resin constituent of the invention 6-1 a phosphite system compound has an independent invention 9-6 phosphorus system antioxidant, or it is [invention] a mixture.

[0113]The refining polyolefin-system-resin constituent of the invention 7-1 a phosphite system compound has an independent invention 9-7 phosphorus system antioxidant, or it is [invention] a mixture.

[0114]The refining polyolefin-system-resin constituent of the invention 1 the sulfur content organic ester of an invention 10-1 sulfur system antioxidant is independent, or it is [invention] a mixture.

[0115]The refining polyolefin-system-resin constituent of the invention 2 the sulfur content organic ester of an invention 10-2 sulfur system antioxidant is independent, or it is [invention] a mixture.

[0116]The refining polyolefin-system-resin constituent of the invention 3-1 the sulfur content organic ester of an invention 10-3 sulfur system antioxidant is independent, or it is [invention]

a mixture.

[0117]The refining polyolefin-system-resin constituent of the invention 4-1 the sulfur content organic ester of an invention 10-4 sulfur system antioxidant is independent, or it is [invention] a mixture.

[0118]The refining polyolefin-system-resin constituent of the invention 5-1 the sulfur content organic ester of an invention 10-5 sulfur system antioxidant is independent, or it is [invention] a mixture.

[0119]The refining polyolefin-system-resin constituent of the invention 6-1 the sulfur content organic ester of an invention 10-6 sulfur system antioxidant is independent, or it is [invention] a mixture.

[0120]The refining polyolefin-system-resin constituent of the invention 7-1 the sulfur content organic ester of an invention 10-7 sulfur system antioxidant is independent, or it is [invention] a mixture.

[0121][an invention 11-1 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-(3-t-butyl-2-hydroxy-5-methyl benzine)-4-methylphenyl acrylate, the refining polyolefin-system-resin constituent of the invention 1 which the tris nonylphenyl phosphite of a phosphorus system antioxidant is independent, or is a mixture.

[0122][an invention 11-2 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-(3-t-butyl-2-hydroxy-5-methyl benzine)-4-methylphenyl acrylate, the refining polyolefin-system-resin constituent of the invention 2 which the tris nonylphenyl phosphite of a phosphorus system antioxidant is independent, or is a mixture.

[0123][an invention 11-3 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-(3-t-butyl-2-hydroxy-5-methyl benzine)-4-methylphenyl acrylate, the refining polyolefin-system-resin constituent of the invention 3-1 which the tris nonylphenyl phosphite of a phosphorus system antioxidant is independent, or is a mixture.

[0124][an invention 11-4 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-(3-t-butyl-2-hydroxy-5-methyl benzine)-4-methylphenyl acrylate, the refining polyolefin-system-resin constituent of the invention 4-1 which the tris nonylphenyl phosphite of a phosphorus system antioxidant is independent, or is a mixture.

[0125][an invention 11-5 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-(3-t-butyl-2-hydroxy-5-methyl benzine)-4-methylphenyl acrylate, the refining polyolefin-system-resin constituent of the invention 5-1 which the tris nonylphenyl phosphite of a phosphorus system antioxidant is

independent, or is a mixture.

[0126][an invention 11-6 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-(3-t-butyl-2-hydroxy-5-methyl benzine)-4-methylphenyl acrylate, the refining polyolefin-system-resin constituent of the invention 6-1 which the tris nonylphenyl phosphite of a phosphorus system antioxidant is independent, or is a mixture.

[0127][an invention 11-7 (meta) acrylic group content phenol system compound and (or) (meta) an acrylic group content sulfur system compound (B)] 2-t-butyl-6-(3-t-butyl-2-hydroxy-5-methyl benzine)-4-methylphenyl acrylate, the refining polyolefin-system-resin constituent of the invention 7-1 which the tris nonylphenyl phosphite of a phosphorus system antioxidant is independent, or is a mixture.

[0128]Before impregnating crystalline polyolefin (a) with an invention 12-1 vinyl system monomer component (b), The refining polyolefin-system-resin constituent of the invention 2 which mixes at least one sort (C) chosen as aqueous suspension from an acrylic (meta) group content phenol system compound, the acrylic (meta) group content sulfur system compound (B), the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant.

[0129]Before impregnating crystalline polyolefin (a) with an invention 12-2 vinyl system monomer component (b), The refining polyolefin-system-resin constituent of the invention 3-2 which mixes at least one sort (C) chosen as aqueous suspension from an acrylic (meta) group content phenol system compound, the acrylic (meta) group content sulfur system compound (B), the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant.

[0130]Before impregnating crystalline polyolefin (a) with an invention 12-3 vinyl system monomer component (b), The refining polyolefin-system-resin constituent of the invention 4-1 which mixes at least one sort (C) chosen as aqueous suspension from an acrylic (meta) group content phenol system compound, the acrylic (meta) group content sulfur system compound (B), the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant.

[0131]Before impregnating crystalline polyolefin (a) with an invention 12-4 vinyl system monomer component (b), The refining polyolefin-system-resin constituent of the invention 5-1 which mixes at least one sort (C) chosen as aqueous suspension from an acrylic (meta) group content phenol system compound, the acrylic (meta) group content sulfur system compound (B), the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant.

[0132]Before impregnating crystalline polyolefin (a) with an invention 12-5 vinyl system monomer component (b), The refining polyolefin-system-resin constituent of the invention 6-1

which mixes at least one sort (C) chosen as aqueous suspension from an acrylic (meta) group content phenol system compound, the acrylic (meta) group content sulfur system compound (B), the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant.

[0133]Before impregnating crystalline polyolefin (a) with an invention 12-6 vinyl system monomer component (b), The refining polyolefin-system-resin constituent of the invention 7-1 which mixes at least one sort (C) chosen as aqueous suspension from an acrylic (meta) group content phenol system compound, the acrylic (meta) group content sulfur system compound (B), the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant.

[0134]Before impregnating crystalline polyolefin (a) with an invention 12-7 vinyl system monomer component (b), The refining polyolefin-system-resin constituent of the invention 8-1 which mixes at least one sort (C) chosen as aqueous suspension from an acrylic (meta) group content phenol system compound, the acrylic (meta) group content sulfur system compound (B), the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant.

[0135]Before impregnating crystalline polyolefin (a) with an invention 12-8 vinyl system monomer component (b), The refining polyolefin-system-resin constituent of the invention 9-1 which mixes at least one sort (C) chosen as aqueous suspension from an acrylic (meta) group content phenol system compound, the acrylic (meta) group content sulfur system compound (B), the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant.

[0136]Before impregnating crystalline polyolefin (a) with an invention 12-9 vinyl system monomer component (b), The refining polyolefin-system-resin constituent of the invention 10-1 which mixes at least one sort (C) chosen as aqueous suspension from an acrylic (meta) group content phenol system compound, the acrylic (meta) group content sulfur system compound (B), the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant.

[0137]Before impregnating crystalline polyolefin (a) with an invention 12-10 vinyl system monomer component (b), The refining polyolefin-system-resin constituent of the invention 11-1 which mixes at least one sort (C) chosen as aqueous suspension from an acrylic (meta) group content phenol system compound, the acrylic (meta) group content sulfur system compound (B), the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant.

[0138]When polymerizing an invention 13-1 vinyl system monomer component (b), an acrylic (meta) group content phenol system compound, (Meta) The refining polyolefin-system-resin constituent of the invention 2 which mixes at least one sort chosen from the acrylic group

content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0139]When polymerizing an invention 13-2 vinyl system monomer component (b), an acrylic (meta) group content phenol system compound, (Meta) The refining polyolefin-system-resin constituent of the invention 3-2 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0140]When polymerizing an invention 13-3 vinyl system monomer component (b), an acrylic (meta) group content phenol system compound, (Meta) The refining polyolefin-system-resin constituent of the invention 4-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0141]When polymerizing an invention 13-4 vinyl system monomer component (b), an acrylic (meta) group content phenol system compound, (Meta) The refining polyolefin-system-resin constituent of the invention 5-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0142]When polymerizing an invention 13-5 vinyl system monomer component (b), an acrylic (meta) group content phenol system compound, (Meta) The refining polyolefin-system-resin constituent of the invention 6-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0143]When polymerizing an invention 13-6 vinyl system monomer component (b), an acrylic (meta) group content phenol system compound, (Meta) The refining polyolefin-system-resin constituent of the invention 7-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0144]When polymerizing an invention 13-7 vinyl system monomer component (b), an acrylic (meta) group content phenol system compound, (Meta) The refining polyolefin-system-resin constituent of the invention 8-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0145]When polymerizing an invention 13-8 vinyl system monomer component (b), an acrylic (meta) group content phenol system compound, (Meta) The refining polyolefin-system-resin constituent of the invention 9-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0146]When polymerizing an invention 13-9 vinyl system monomer component (b), an acrylic (meta) group content phenol system compound, (Meta) The refining polyolefin-system-resin constituent of the invention 10-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0147]When polymerizing an invention 13-10 vinyl system monomer component (b), an acrylic (meta) group content phenol system compound, (Meta) The refining polyolefin-system-resin constituent of the invention 11-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0148]The acrylic (meta) group content phenol system compound after polymerizing an invention 14-1 vinyl system monomer component (b), (Meta) The refining polyolefin-system-resin constituent of the invention 2 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0149]The acrylic (meta) group content phenol system compound after polymerizing an invention 14-2 vinyl system monomer component (b), (Meta) The refining polyolefin-system-resin constituent of the invention 3-2 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0150]The acrylic (meta) group content phenol system compound after polymerizing an invention 14-3 vinyl system monomer component (b), (Meta) The refining polyolefin-system-resin constituent of the invention 4-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0151]The acrylic (meta) group content phenol system compound after polymerizing an invention 14-4 vinyl system monomer component (b), (Meta) The refining polyolefin-system-resin constituent of the invention 5-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0152]The acrylic (meta) group content phenol system compound after polymerizing an invention 14-5 vinyl system monomer component (b), (Meta) The refining polyolefin-system-resin constituent of the invention 6-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0153]The acrylic (meta) group content phenol system compound after polymerizing an invention 14-6 vinyl system monomer component (b), (Meta) The refining polyolefin-system-

resin constituent of the invention 7-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0154]The acrylic (meta) group content phenol system compound after polymerizing an invention 14-7 vinyl system monomer component (b), (Meta) The refining polyolefin-system-resin constituent of the invention 8-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0155]The acrylic (meta) group content phenol system compound after polymerizing an invention 14-8 vinyl system monomer component (b), (Meta) The refining polyolefin-system-resin constituent of the invention 9-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0156]The acrylic (meta) group content phenol system compound after polymerizing an invention 14-9 vinyl system monomer component (b), (Meta) The refining polyolefin-system-resin constituent of the invention 10-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0157]The acrylic (meta) group content phenol system compound after polymerizing an invention 14-10 vinyl system monomer component (b), (Meta) The refining polyolefin-system-resin constituent of the invention 11-1 which mixes at least one sort chosen from the acrylic group content sulfur system compound, the phenolic antioxidant, the phosphorus system antioxidant, and the sulfur system antioxidant to aqueous suspension.

[0158]By having composition of the constituent of said invention 1, it fabricates with the improvement effect of the moldability to the Plastic solid of a sheet etc., [by acquiring the effect of excelling in the thermal stability at the time of processing, and limiting the denaturation polyolefine (A) in the invention 1 like the invention 2] [by acquiring the effect of low-cost-izing of manufacture by simplification of the polymerizing method, and limiting the vinyl system monomer component (b) in the inventions 1-2 like the invention 3-1 to 3-2] [by more fully being able to reveal the improvement effect of the workability in the inventions 1-2, respectively, and limiting the vinyl system monomer component (b) in the inventions 1-2 like the invention 4-1 to 4-2] Low cost-ization in the inventions 1-2 is achieved, respectively, and becomes more nearly general-purpose, The thermal stability in the inventions 1-2 is improved, respectively by limiting the vinyl system monomer component (b) in the inventions 1-2 like the invention 5-1 to 5-2, By limiting the aqueous suspension in the invention two to 5-2 like the invention 6-1 to 6-4, the graft rate of the vinyl system monomer component (b) in the invention two to 5-2 can be raised, respectively, [by limiting the crystalline polyolefin (a) in the invention

one to 6-1 like the invention 7-1 to 7-6] The effect that each refining polyolefin-system-resin constituent obtained by the invention one to 6-1 is excellent in compatibility with polyolefine (D), makes the workability improvement effect fully reveal, and gets is acquired. [by limiting the (B) component in the invention one to 7-1 like the invention 8-1 to 8-7] [by being able to improve to what was excellent in each thermal stability in the invention one to 7-1, and limiting the (B) component in the invention one to 7-1 like the invention 11-1 to 11-7] Each especially thermal stability in the invention one to 7-1 is improvable to the outstanding thing, [by carrying out relation between the time to impregnate crystalline polyolefin (a) with the vinyl system monomer component (b) in the invention two to 11-1, and the time to add at least one sort of the (B) component and the (C) component like the invention 12-1 to 12-10] It is desirable from the point that each manufacture (polymerization) of the refining polyolefin-system-resin constituent of the invention two to 11-1 becomes simply and safe, [by carrying out relation between the time to impregnate crystalline polyolefin (a) with the vinyl system monomer component (b) in the invention two to 11-1, and the time to add at least one sort of the (B) component and the (C) component like the invention 13-1 to 13-10] The refining polyolefin-system-resin constituent of the invention two to 11-1 becomes desirable in respect of the rate of impregnation to the crystalline polyolefin (a) of a vinyl system monomer component (b), [by carrying out relation between the time to impregnate crystalline polyolefin (a) with the vinyl system monomer component (b) in the invention two to 11-1, and the time to add at least one sort of the (B) component and the (C) component like the invention 14-1 to 14-10] The refining polyolefin-system-resin constituent of the invention two to 11-1 becomes desirable from the point of the graft rate to the crystalline polyolefin (a) of a vinyl system monomer component (b).

[0159][the refining polyolefin-system-resin constituent like the above] It may use for manufacture of the Plastic solid by extrusion or calendering shaping, and also an injection-molding object then, It may use for a film or a sheet-shaped Plastic solid, and using for the manufacture of one axis, a film, or a sheet-shaped Plastic solid which comes to carry out a biaxial orientation preferably, and manufacturing a blow molding object by extrusion-blow-molding method or an injection-blow-molding method further.

[0160]It may be made a Plastic solid by vacuum forming or pressure forming said film or a sheet-shaped Plastic solid, and by performing thermoforming at the temperature whose one axis, film which comes to carry out biaxial orientation, or sheet-shaped Plastic solid it is desirable and is suitable.

[0161]To a refining polyolefin-system-resin constituent, trichloromonofluoromethane, Foam may be manufactured after making it the fizz resin composition (refining polyolefine system fizz resin composition) which blended foaming agents, such as dichloro tetrafluoro ethane, dichlorodifluoromethane, propane, butane, and pentane.

[0162]use with the refining polyolefin-system-resin constituent at the time of preparing said foaming resin composition, and a foaming agent -- if it carries out comparatively, from a point of expansion ratio, the stability of a blister, and the surface nature of a Plastic solid, 1-50 copies of foaming agents are general ranges to said 100 copies of constituents, and they are 5-40 copies preferably.

[0163]The refining polyolefin-system-resin constituent (E) of this invention may be used as a modifier of other resin, such as polyolefine, without using it as it is, although it may be used for shaping as it is like the above.

[0164]Because, when it explains taking the case of the denaturation polyolefine (A) by said water suspension polymerization method which is an example of representation of denaturation polyolefine (A), [denaturation polyolefine (A)] Like the above, it is because the vinyl system monomer component (b) which makes the workability improvement effect reveal contains the polyolefine by which the graft was carried out. Although the vinyl system polymer which has not carried out a graft as other components, and the polyolefine by which a graft is not carried out are contained inevitably, this denaturation polyolefine (A) can usually be used as it is, when adding to the polyolefine used as a matrix. That is, even if it blends without classifying these two components in particular, it does not have big influence on revelation of the workability improvement effect in particular. Of course, the thing except the vinyl system polymer which has not carried out a graft from the resultant in this water suspension polymerization method by judgment, That is, the mixture of the polyolefine by which a graft is not carried out to a graft copolymer is refined, and even if it adds it to other resin, such as polyolefine used as a matrix, the workability improvement effect is revealed.

[0165]The denaturation polyolefine (A) refined in this way is a thing of the category of denaturation polyolefine (A).

[0166]As an example of representation of other resin which uses a refining polyolefin-system-resin constituent (E) as a modifier, a refining polyolefin-system-resin constituent (E), polarity, etc. approximate, and polyolefine with good compatibility (D) is raised.

[0167]Since it has the characteristics that the refining polyolefin-system-resin constituent (E) is excellent in improvement of workability when using a refining polyolefin-system-resin constituent (E) as a modifier of polyolefine (D), The fault that the fabricating operation of polyolefine (D) is restricted is improvable.

[0168]As polyolefine (D), a melt flow index (it is also called a melting index) 10g/10 minutes or less. The tension at the time of melting is preferably preferred from the point that effects, like it is still more desirable, 2.5g/the thing for 10 or less minutes is large, and 5g/10 minutes or less is excellent in workability are fully revealed. This melt flow index was measured by 2.16 kg of load according to ASTM D1238, and propylene system polyolefine is a value in 230 **, for example.

In ethylene system polyolefine, it is 190 ** in value.

[0169][as an example of the polyolefine (D) used for this invention] For example, polypropylene, high density polyethylene, low density polyethylene, Linear low density polyethylene, poly-1-butene, polyisobutylene, propylene and ethylene, and (or) random or the block copolymer in all ratios with 1-butene, The ethylene-propylene-diene terpolymer in which a diene component is contained 10% or less in all the ratios of ethylene and propylene, Randomness with vinyl compounds, such as methacrylic acid alkyl ester, polymethylpentene, ethylene or propylene, and 50% or less, for example, vinyl acetate, acrylic acid alkyl ester, and aromatic vinyl, etc., a block, or a graft copolymer is raised. These are independent, or can mix and use two or more sorts.

[0170]In this invention, [as polyolefine (D)] As opposed to the propylene system polyolefine produced by polymerizing the monomer component which contains propylene not less than 50%, and these 100 copies of propylene system polyolefines, 0.1-100 copies of ethylene system polyolefines produced by polymerizing the monomer component which contains ethylene not less than 50%, and the thing which mixed further 1-50 copies are general-purpose, easy to come to hand, and preferred from the point of being inexpensive.

[0171]The blending ratios of said polyolefine (D) and a refining polyolefin-system-resin constituent (E) are 0.01-100 copies of refining polyolefin-system-resin constituents (E) to 100 copies of polyolefines (D). In it becoming difficult when the mixed amount of this refining polyolefin-system-resin constituent (E) is less than 0.01 copy to fully reveal the improvement effect's of workability and surpassing 100 copies, flexibility comes to fall in respect of not becoming low cost etc.

[0172]It is desirable from the point that it reveals the improvement effect of workability that the least amounts of the mixed amount of this constituent (E) are 0.1 or more copies and 0.5 more or more copies. As for the maximum amount of these, it is preferred from a point of low-cost-izing that they are 20 or less copies and ten more copies or less. Depending on the case, the quantity of this desirable constituent (E) is 0.01-20 copies and further 0.01-10 copies.

[0173][the polyolefin-system-resin constituent which consists of the polyolefine (D) and the refining polyolefin-system-resin constituent (E) like the above] The rigidity of the polyolefin-system-resin constituent furthermore obtained, paintwork, printing nature, etc. are made to improve, In order to realize low cost-ization, may add an inorganic bulking agent (F), and again, For improvement in thermal stability, an acrylic (meta) group content phenol system compound, an acrylic group content sulfur system compound, and (or) a phenolic antioxidant, At least one sort in a phosphorus system antioxidant and a sulfur system antioxidant may be added, The rigidity of the polyolefin-system-resin constituent furthermore obtained, paintwork, printing nature, etc. are made to improve, In order to realize low cost-ization and to raise

thermal stability An inorganic bulking agent (F), an acrylic (meta) group content phenol system compound, an acrylic group content sulfur system compound ((B) component), and (or) a phenolic antioxidant, At least one sort ((C) component) in a phosphorus system antioxidant and a sulfur system antioxidant may be added.

[0174]It is preferred that they are 0.1-1000 copies to 100 copies of polyolefines (D) as loadings in the case of using said inorganic bulking agent (F). In there being a tendency which becomes insufficient [the rigid improvement effect revealed with this inorganic bulking agent (F)] when the loadings of this inorganic bulking agent (F) are less than 0.1 copy and surpassing 1000 copies, there is a tendency for the surface nature of the polyolefin-system-resin constituent obtained to come to fall. It is preferred from a point of improvement in rigidity, paintwork, printing nature, etc. that the least amounts of this inorganic bulking agent (F) are five or more copies and ten more copies or more. The maximum amount of these is preferred from the point that it does not reduce surface nature that they are 300 or less copies and 100 more copies or less. Depending on the case, the quantity of a desirable inorganic bulking agent (F) is 5-300 copies and further 10-100 copies.

[0175]The aforementioned (meta) acrylic group content phenol system compound, an acrylic group content sulfur system compound ((B) component), and (or) a phenolic antioxidant, [as loadings in the case of using at least one sort ((C) component) in a phosphorus system antioxidant and a sulfur system antioxidant] An acrylic (meta) group content phenol system compound and (or) (meta) 0.01-20 copies of acrylic group content sulfur system compounds (B) are preferred to 100 copies of polyolefines (D), In there being a tendency for the stabilization effect by having used the stabilizing agent to become small in being less than 0.01 copy and surpassing 20 copies, there is a tendency for physical properties and surface nature, such as mechanical strength, to fall. (B) It is preferred that the least amounts of a component are 0.05 or more copies and 0.1 more or more copies from the point that a stabilization effect can be made to fully reveal. It is preferred from a point of low-cost-izing that the maximum amounts of these are ten or less copies and five more copies or less. When at least one sort (C) in a phenolic antioxidant, a phosphorus system antioxidant, and a sulfur system antioxidant is preferred and has 0-20 copies [good] for 20 copies, there is a tendency for physical properties and surface nature, such as mechanical strength, to fall. (C) That they are 0.1 or more copies especially has the preferred least amount of a component 0.05 or more copies from the point of excelling in the thermal stability improvement effect according to a synergistic effect with the (B) component. It is preferred from a point of low-cost-izing that ten or less copies of maximum amounts of these are five or less copies especially.

[0176]Said inorganic bulking agent (F) acrylic (meta) group content phenol system compound, an acrylic group content sulfur system compound (B), and (or) a phenolic antioxidant, [as loadings in the case of using at least one sort (C) in a phosphorus system antioxidant and a

sulfur system antioxidant] 0.1-1000 copies of an inorganic bulking agent (F) are preferred to 100 copies of polyolefines (D), An acrylic (meta) group content phenol system compound and (or) (meta) 0.01-20 copies of acrylic group content sulfur system compounds (B) are preferred, The inside [it is a phenolic antioxidant, a phosphorus system antioxidant, and a sulfur system antioxidant] of 1 sort (C)0-20 copy is preferred at least.

[0177]In there being a tendency which becomes insufficient [the rigid improvement effect revealed with this inorganic bulking agent (F)] when the loadings of said inorganic bulking agent (F) are less than 0.1 copy and surpassing 1000 copies, there is a tendency for the surface nature of the polyolefin-system-resin constituent obtained to fall. It is preferred from a point of improvement in rigidity, paintwork, printing nature, etc. that the least amounts of this inorganic bulking agent (F) are five or more copies and ten more copies or more. The maximum amount of these is preferred from the point that it does not reduce surface nature that they are 300 or less copies and 100 more copies or less.

[0178]In there being a tendency for the stabilization effect by having used the stabilizing agent to become small when the loadings of the (B) component are less than 0.01 copy and surpassing 20 copies, there is a tendency for physical properties and surface nature, such as mechanical strength, to fall. (B) It is desirable from the point that that the least amounts of a component are 0.05 or more copies and 0.1 more or more copies can make a stabilization effect fully reveal. It is preferred from a point of low-cost-izing that the maximum amounts of these are ten or less copies and five more copies or less.

[0179]When the loadings of the (C) component surpass 20 copies, there is a tendency for physical properties and surface nature, such as mechanical strength, to fall. (C) That they are 0.1 or more copies especially has the preferred least amount of a component 0.05 or more copies from the point of excelling in the thermal stability improvement effect according to a synergistic effect with the (B) component. It is preferred from a point of low-cost-izing that ten or less copies of maximum amounts of these are five or less copies especially.

[0180]As an example of said inorganic bulking agent, for example Heavy calcium carbonate, precipitated calcium carbonate, A talc, glass fiber, magnesium carbonate, mica, kaolin, calcium sulfate, Barium sulfate, a titanium white, white carbon, carbon black, aluminium hydroxide, magnesium hydroxide, etc. are raised, and these are independent, or can mix and use two or more sorts. In these, heavy calcium carbonate, precipitated calcium carbonate, and a talc are preferred from the point of making rigidity, paintwork, printing nature, etc. improving, being a general-purpose article, and being easy to receive.

[0181]When that they are about 10 micrometers or less and about 5 micrometers or less of ********** raise the surface nature of the polyolefin-system-resin constituent obtained as for the mean particle diameter of said inorganic bulking agent (F), it is preferred.

[0182]As an example of the aforementioned (B) component and the (C) component, what was

raised with explanation of a refining polyolefin-system-resin constituent (E) is raised.
[0183]There is no limitation in particular in the preparing method of said polyolefin-system-resin constituent, The denaturation polyolefine (A) which is a component of a refining polyolefin-system-resin constituent, (B) It may mix with polyolefine (D) independently and a component and the (C) component may be prepared, Although it mixes previously only of each component of a refining polyolefin-system-resin constituent, and is considered as the pellet of a refining polyolefin-system-resin constituent, etc., and it may mix with polyolefine (D) and this may be prepared, it is preferred to mix with polyolefine (D) independently from a point of workability, and to prepare.
[0184]There is no limitation in particular in the aforementioned mixing method, for example, said polyolefine (D) and a refining polyolefin-system-resin constituent (E) can be mixed by the usual methods, such as an extrusion mixed method and a roll mixed method, it can mix an inorganic bulking agent (F) etc. as occasion demands, and it can be considered as a polyolefin-system-resin constituent.
[0185]Although the polyolefin-system-resin constituent of this invention is manufactured like the above, [a constituent] In this polyolefin-system-resin constituent, the improving agent etc. of the workability of lubricant, the core shell graft copolymer conventionally used for polyvinyl chloride system resin etc., and a core shell mold can be added further if needed.
[0186]As an example of representation of said lubricant, saturation, such as a lauryl acid, palmitic acid, oleic acid, and stearic acid, or the sodium salt of unsaturated fatty acid, calcium salt, magnesium salt, etc. are raised, for example, and these are independent, or can mix and use two or more sorts. As for the loadings of this lubricant, it is preferred from a point of low-cost-izing that they are usually about 0.1-3 copies and about 0.1-2 copies of ********** to 100 copies of polyolefines (D).
[0187]It can manufacture by the usual radical polymerization method, and the polymerizing methods, such as a suspension polymerization method and an emulsion polymerization method, are used as said core shell graft copolymer is stated to the Tokuganhei5-83567 Description in detail. An emulsion polymerization method is more preferred than the viewpoint of control of particle diameter, grain structure, etc.
[0188]Thus, the prepared polyolefin-system-resin constituent is a thing of the form like the powder whose mean particle diameter is usually about 100-300 micrometers.
It may use for manufacture of the Plastic solid by extrusion or calendering shaping, and also an injection-molding object then, a film or a sheet-shaped Plastic solid, and using for manufacture of one axis, the film which comes to carry out biaxial combination, or a sheet-shaped Plastic solid preferably, and manufacturing a blow molding object by extrusion-blow-molding method or an injection-blow-molding method further -- business -- a potato is good.
It is good as for a thermoforming object by vacuum forming or pressure forming said film or a

sheet-shaped Plastic solid, and by performing thermoforming at the temperature whose one axis, film which comes to carry out a biaxial orientation, or sheet-shaped Plastic solid it is desirable and is suitable.

[0189]After making it the fizz resin composition (it is also called a polyolefine system fizz resin composition) which blended with the polyolefin-system-resin constituent the foaming agent (it is the same as what is used for said refining polyolefine system fizz resin composition), For example, foam may be manufactured by carrying out foaming using an extruder etc.

[0190]use with the polyolefin-system-resin constituent at the time of preparing said foaming resin composition, and a foaming agent -- if it carries out comparatively, from a point of expansion ratio, the stability of a blister, and the surface nature of a Plastic solid, 1-50 copies of foaming agents are general ranges to said 100 copies of constituents, and they are 5-40 copies preferably.

[0191]Although the above explanation is explanation about the case where other resin which adds a refining polyolefin-system-resin constituent (E) as a modifier is polyolefines (D), resin besides the above may be a compound of nonpolar polymer and polar polymer like polyolefine (D). In this case, by adding a refining polyolefin-system-resin constituent (E), the compatibility of nonpolar polymer and polar polymer can be improved and the effect that dispersibility can be raised is acquired.

[0192]As an example of said nonpolar polymer, olefin system polymer, for example, polypropylene, High density polyethylene, low density polyethylene, linear low density polyethylene, Poly-1-butene, polyisobutylene, propylene and ethylene, and (or) random or the block copolymer in various ratios with 1-butene, The ethylene-propylene-diene terpolymer in which a diene component is contained 10% or less in the various ratios of ethylene and propylene, Randomness with vinyl compounds, such as methacrylic acid alkyl ester, polymethylpentene, ethylene or propylene, and 50% or less, for example, vinyl acetate, acrylic acid alkyl ester, and aromatic vinyl, etc., a block, or a graft copolymer is raised. These are independent, or they can use them for two or more sorts, mixing.

[0193]As an example of said polar polymer, acrylonitrile-butadiene-styrene copolymer, Acetal polymer, polyarylate, an acrylic acid (meta) ester styrene copolymer, An acrylonitrile (meta) acrylic acid ester styrene copolymer, The acrylonitrile styrene copolymer denatured by ethylene-propylene rubber, cellulose, a polyester polyether block copolymer, and polyester (for example, polybutylene terephthalate.) Polyethylene terephthalate, liquid crystal polyester, polyetheramide, Polyether ketone, polyetherimide, polyether sulphone, An ethylene-vinyl alcohol copolymer, polyvinyl chloride, chlorinated polyvinyl chloride, polyvinyl chloride, polyvinylidene fluoride, and styrene polymer (for example, polystyrene.) high impact polystyrene and styrene system polymer (for example, a styrene acrylonitrile copolymer.) The copolymer, the polyphenylene ether, the polyphenylene sulfide, polysulfone which consist of

styrene system copolymeric monomers, such as a styrene butadiene copolymer, a styrene maleic anhydride copolymer, styrene, and alkylation styrene, Polyurethane and polyamide (for example, the nylon 6, the nylon 6 and 6, the nylon 6 and 9, the nylon 6 and 10, the nylon 6 and 12, Nylon 11, Nylon 12, amorphous nylon), i.e., nylon. Polymer (for example, polymethylmethacrylate), polycarbonate, etc. which consist of polyamidoimide, polycaprolactone, poly glutar imide, and alkyl (meta) acrylate of the carbon numbers 1-8 are raised. These are independent, or can mix and use two or more sorts. From the point that flexibility and melting flowability are good in these to polystyrene. (Meta) Acrylic ester polymer, a styrene acrylonitrile copolymer, An ethylene-vinyl alcohol copolymer, polyamide, polyester (for example, polyethylene terephthalate), Polycarbonate, polyphenylene ether, polyvinyl chloride, acrylonitrile-butadiene-styrene copolymer, [using at least one sort chosen from polymethylmethacrylate, polyethylene terephthalate, and polyvinylidene chloride] When it is considered as a mixture with the polyolefine of said nonpolar polymer, the compatibility improvement effect of a refining polyolefin-system-resin constituent (E) is preferred from the point that the dispersibility of the resin composition which is more fully revealed and is obtained improves further.

[0194]As for the blending ratio of said nonpolar polymer and polar polymer, it is preferred that they are 95:5-5:95, and ********* 80:20-20:80 in a weight ratio. When the blending ratio of this nonpolar polymer and polar polymer is less than said range, In there being a tendency for the improvement effect of the physical properties acquired by blending polar polymer with nonpolar polymer to become small and surpassing said range, there is a tendency for the improvement effect of the physical properties acquired by blending nonpolar polymer with polar polymer to become small.

[0195]As for the loadings of the refining polyolefin-system-resin constituent (E) at the time of dealing in the constituent which consists of said nonpolar polymer, polar polymer, and a refining polyolefin-system-resin constituent (E), it is preferred that they are 0.01-10 copies to 100 copies of mixtures which consist of said nonpolar polymer and polar polymer. In the compatibility improvement effect's becoming small when the loadings of this refining polyolefin-system-resin constituent (E) are less than 0.1 copy and surpassing ten copies, even if it adds more, the effect over the compatibility improvement effect becomes small.

[0196]It is preferred that the least amounts of said loadings are 0.1 or more copies, 0.2 or more copies, 0.5 or more copies, and one more or more copies from the point that compatibility is improvable. It is preferred from a point of low-cost-izing that the maximum amounts of these are five or less copies and 2.5 more copies or less. Depending on the case, 1-5 copies are preferred, for example.

[0197][a resin composition excellent in the compatibility like the above] It may use for manufacture of the Plastic solid by extrusion or calendering shaping, and also an injection-

molding object then, It may use for a film or a sheet-shaped Plastic solid, and using for the manufacture of one axis, a film, or a sheet-shaped Plastic solid which comes to carry out a biaxial orientation preferably, and manufacturing a blow molding object by extrusion-blow-molding method or an injection-blow-molding method further.

[0198]It may be made a Plastic solid by vacuum forming or pressure forming said film or a sheet-shaped Plastic solid, and by performing thermoforming at the temperature whose one axis, film which comes to carry out biaxial orientation, or sheet-shaped Plastic solid it is desirable and is suitable.

[0199]Although the Plastic solid which consists of the Plastic solid which consists of a refining polyolefin-system-resin constituent above, a polyolefin-system-resin constituent, a fizz resin composition, and these constituents, and the resin composition which is further excellent in compatibility have been explained, The contents which already explained are also united [effect / the combination of each constituent features, / its] about the main things of the constituents and Plastic solids which are not yet explained enough, and it indicates below.

[0200]They are the inventions 1, 2, and 3 (in order to indicate briefly the invention 3-1 or the invention 3-2) to 100 copies of invention 15 polyolefines (D). it is shown that the same expression as the following only indicated to be the invention 3 is the same -- the polyolefin-system-resin constituent which mixes 0.01-100 copies of refining polyolefin-system-resin constituents (E) of 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14.

[0201]The polyolefin-system-resin constituent of the invention 15 whose loadings of an invention 16 refining polyolefin-system-resin constituent (E) are 0.01-20 copies.

[0202]The polyolefin-system-resin constituent of the invention 15 which is the propylene system polyolefine produced by 17 to invention 1 polyolefine (D) polymerizing the monomer component containing more than propylene 50%.

[0203]The polyolefin-system-resin constituent of the invention 16 which is the propylene system polyolefine produced by 17 to invention 2 polyolefine (D) polymerizing the monomer component containing more than propylene 50%.

[0204]As opposed to 100 copies of propylene system polyolefines produced by 18 to invention 1 polyolefine (D) polymerizing the monomer component containing more than propylene 50%, The polyolefin-system-resin constituent of the invention 15 which mixes 0.1-100 copies of ethylene system polyolefines produced by polymerizing the monomer component containing more than ethylene 50%.

[0205]As opposed to 100 copies of propylene system polyolefines produced by 18 to invention 2 polyolefine (D) polymerizing the monomer component containing more than propylene 50%, The polyolefin-system-resin constituent of the invention 16 which mixes 0.1-100 copies of ethylene system polyolefines produced by polymerizing the monomer component containing more than ethylene 50%.

[0206]As opposed to 100 copies of invention 19 polyolefines (D), The polyolefin-system-resin constituent which mixes 0.01-100 copies of refining polyolefin-system-resin constituents (E) and 0.1-1000 copies of inorganic bulking agents (F) of the invention 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14.

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